

## BI 199 APWT Discussion 3

Tiggr just loves Anatomy!  
Fun! Fun!! Fun!!!



I. Attendance & Announcements Next time B63B  
Klamath 1st Anatomy Lab Trip! Directions ✓.  
**NB: Shoes + pants & no photos. Q?**

### II. Anatomy of Squat-Push-Pull Exercises

#### A. Squat

1. Multi-joint: Front squat/squat, leg press, lunge
2. Single-joint/isolation: Leg extension, leg curl

#### B. Push

1. Bench press
2. Military press

#### C. Pull

1. Bent-over row
2. Rowing variations

**SOURCES:** VPL, Francis & Martin, McMinn & Hutchings, Panksy & <http://www.fitworkz.com>



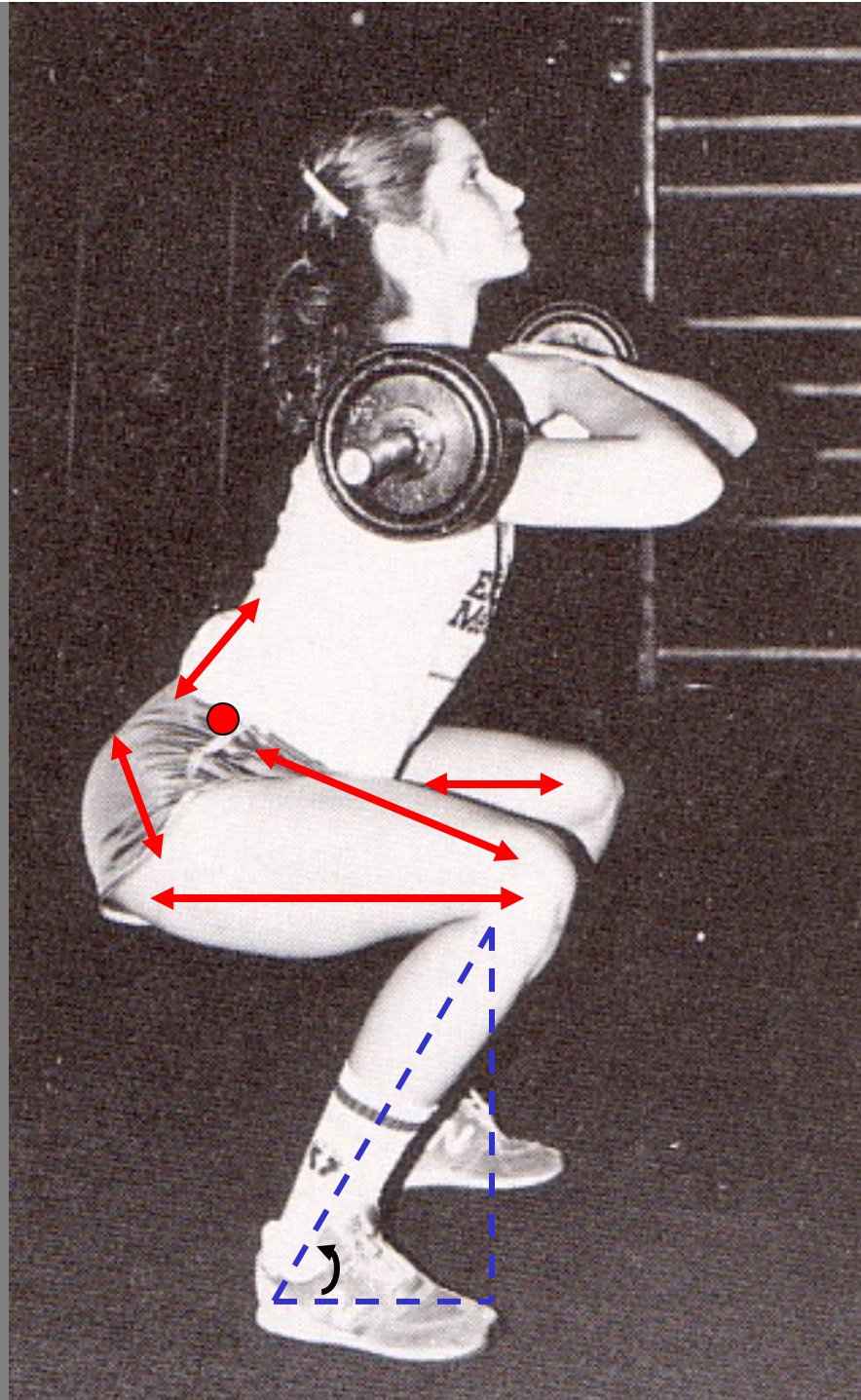
***Squat!***

***Lower Body!***

***COG to periphery!***

# Front Squat

Hip  
Thigh front  
back  
inside  
Lower back



Gluteal group  
Quadriceps  
Hamstrings  
Adductors  
Erector spinae



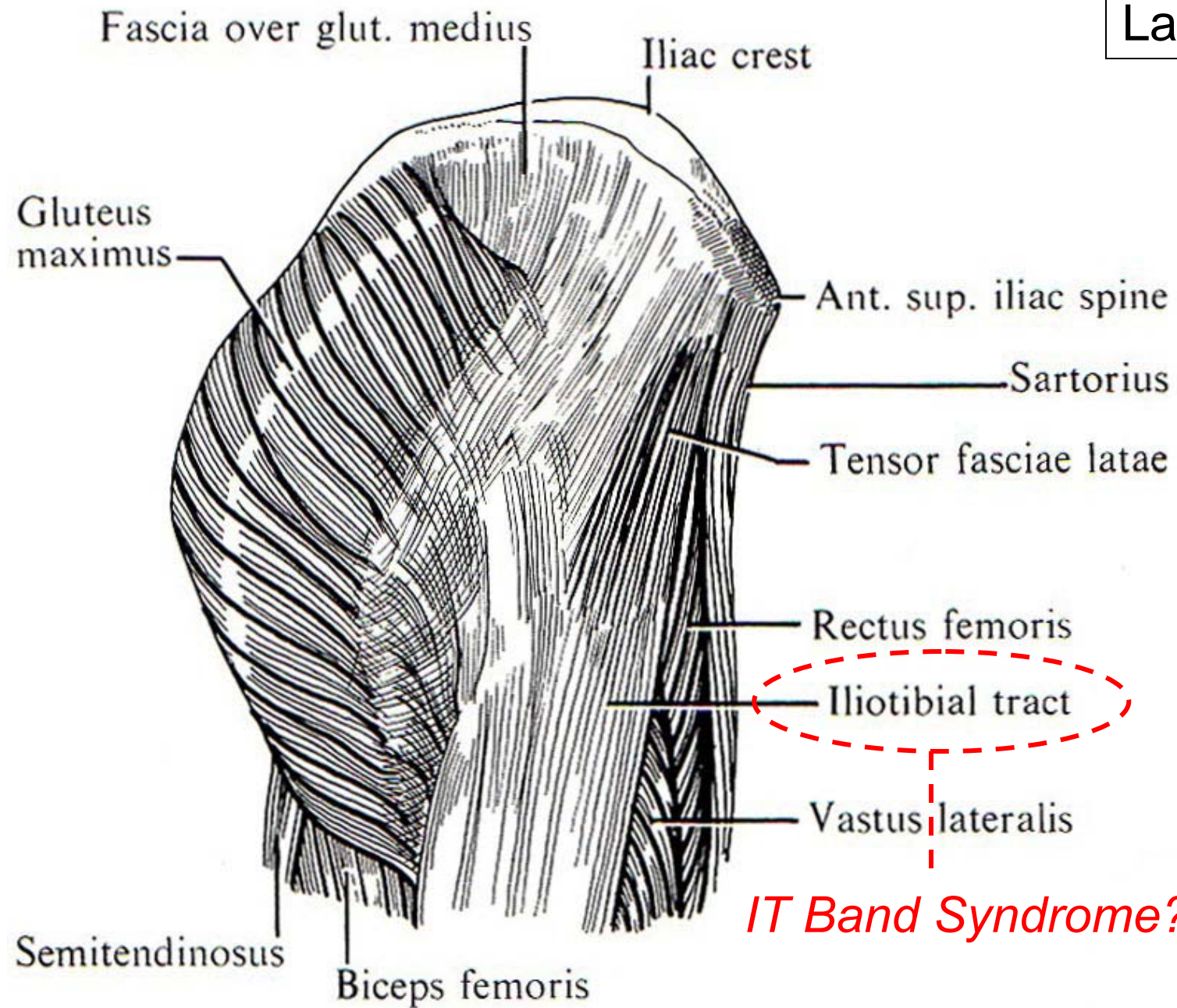
*Sprinters  
rely upon  
explosive  
hip & thigh  
strength  
emanating  
from the  
Center of  
Gravity! ●*



L Sherwood



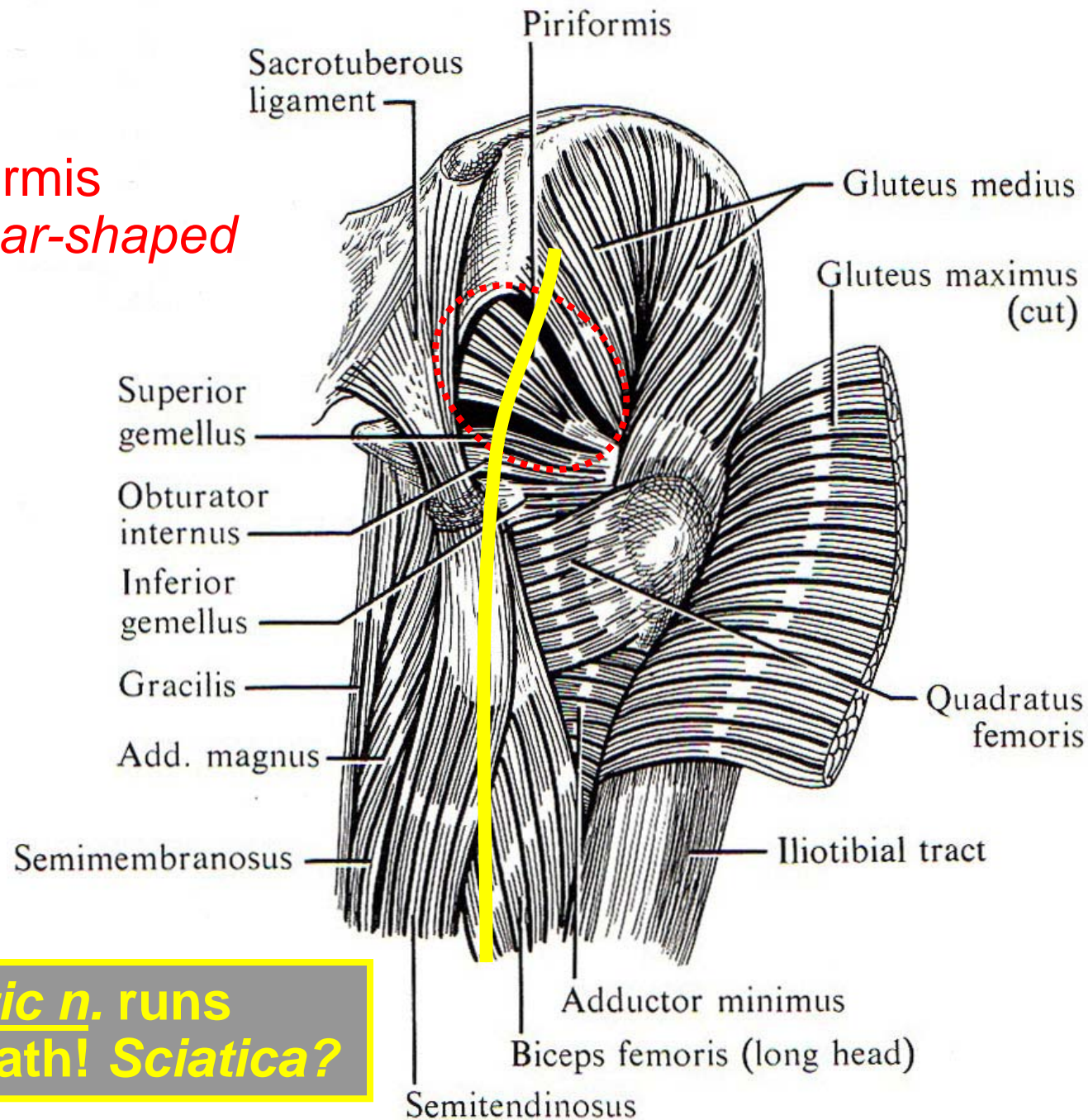
R hip  
Lateral



*IT Band Syndrome?*

R hip  
Posterior

Piriformis  
*L. pear-shaped*

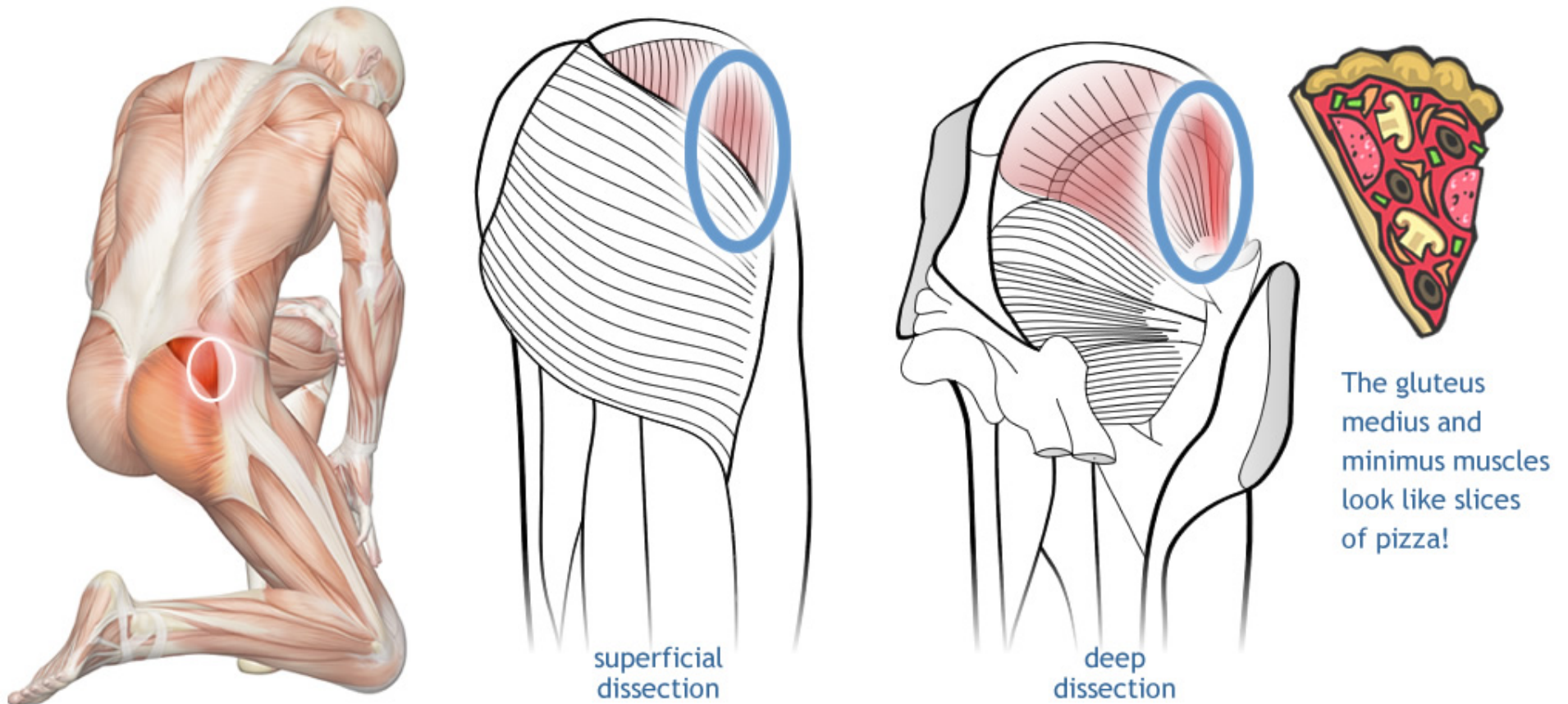


***Sciatic n. runs  
beneath! Sciatica?***



# Deeper Gluteal Muscles Look Like Pizza Slices!!

Superficial to Deep: *Maximus, Medius, Minimus*!



[http://www.anatomyexpert.com/structure\\_detail/5715/](http://www.anatomyexpert.com/structure_detail/5715/)

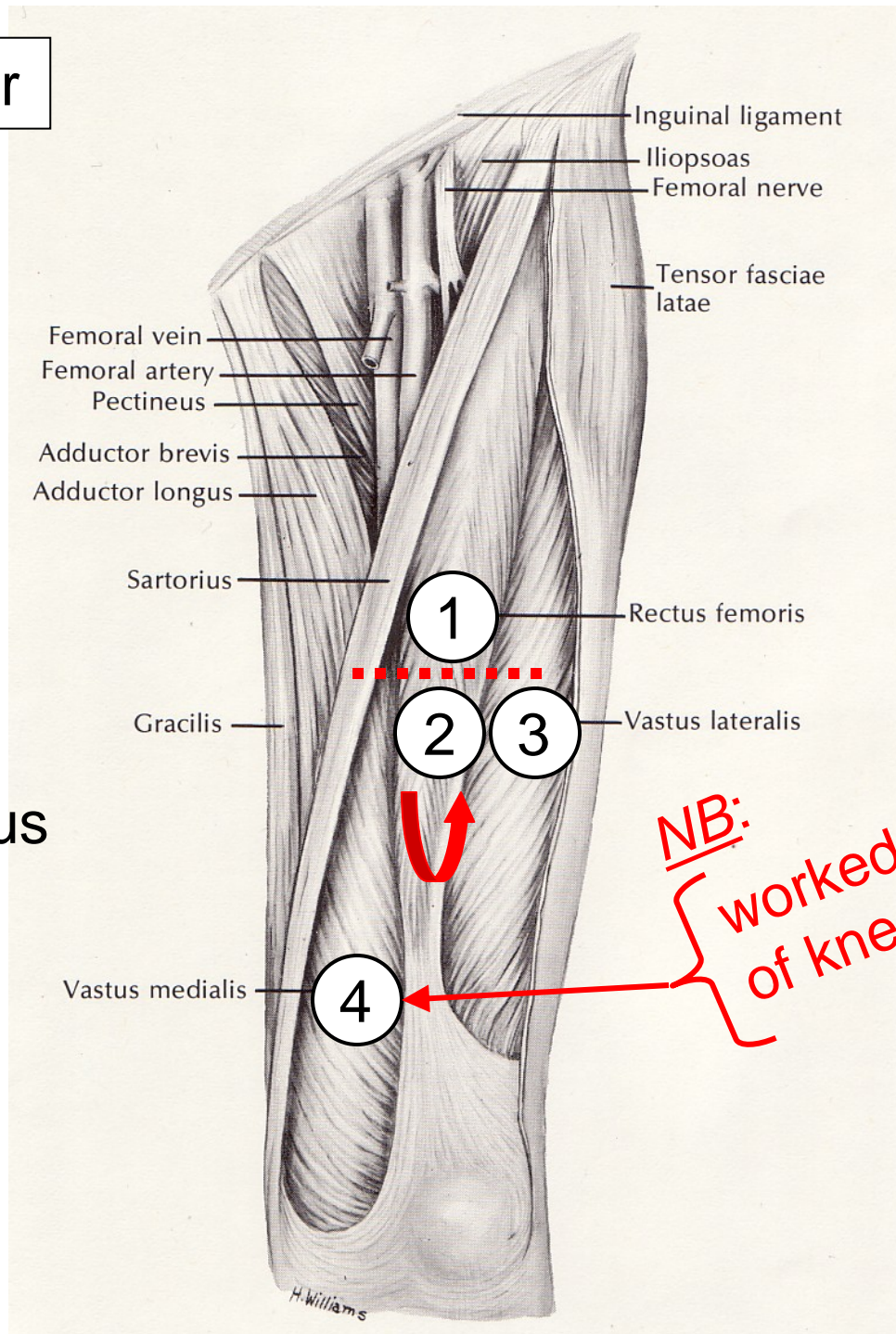
Image Source: <http://saveyourself.ca/articles/spot-06-gluteus-medius.php>



## L thigh anterior

### Quadriceps

- ① Rectus femoris
- ② Vastus intermedius
- ③ Vastus lateralis
- ④ Vastus medialis



L thigh anterior  
& medial

NB: torqued laterally

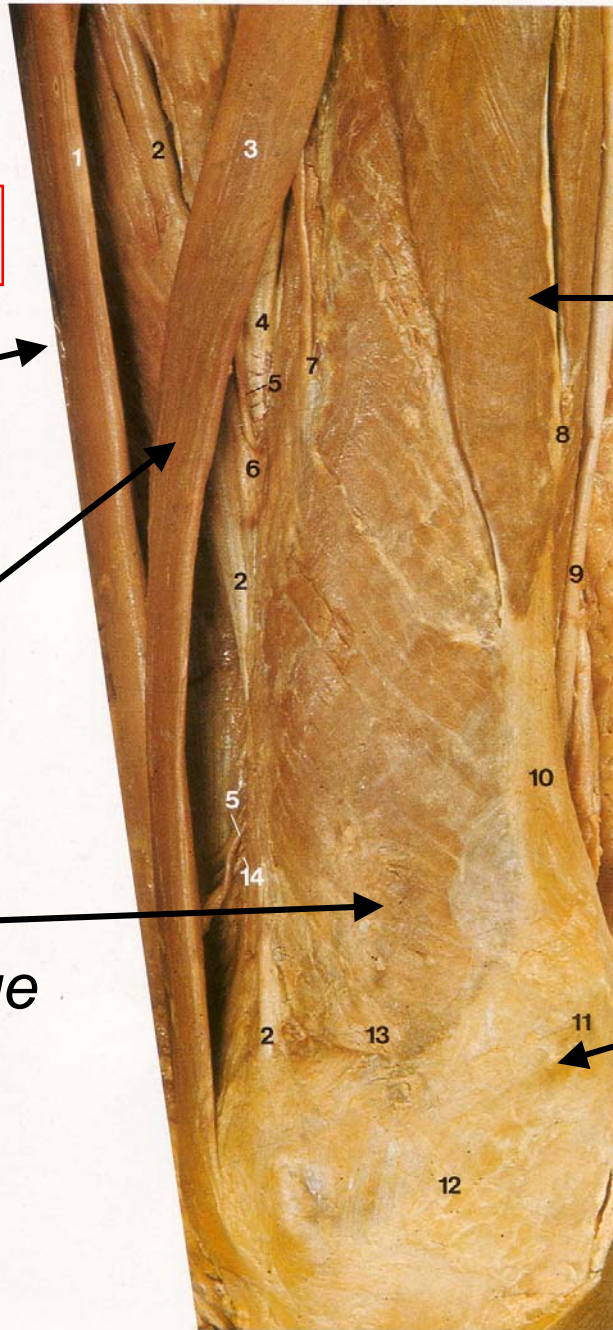
Gracilis  
*L. slender  
adductor*

Sartorius  
*L. tailor*

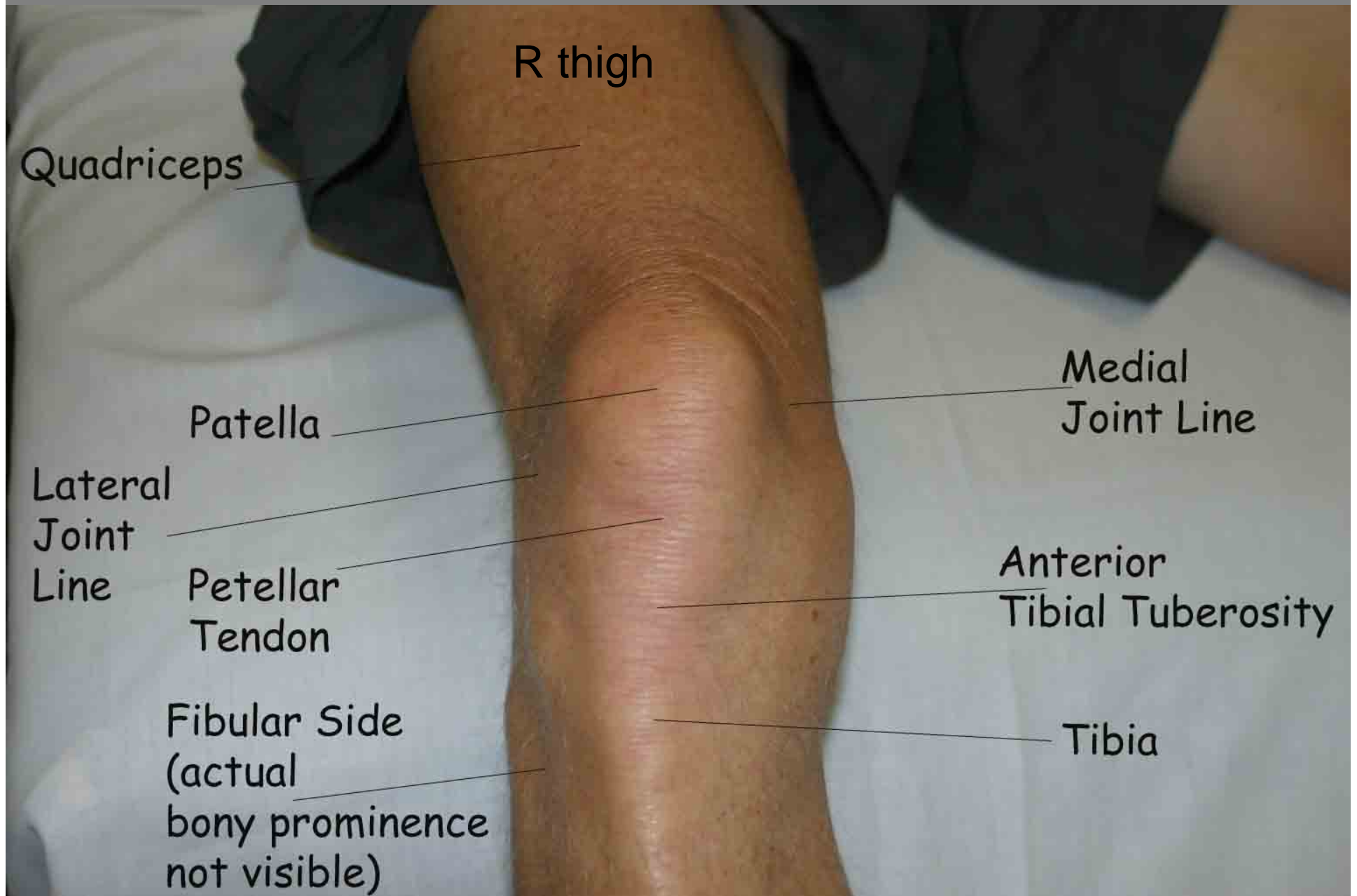
Vastus medialis  
*L. great, vast, huge  
medial extensor!*

Rectus femoris  
*L. straight thigh  
muscle, also  
extensor*

Patella ≡ kneecap  
*L. shallow dish/pan,  
sesamoid or  
island bone*



## ***Knee Surface Anatomy – UC San Diego Clinical Medicine***





## L thigh posterior

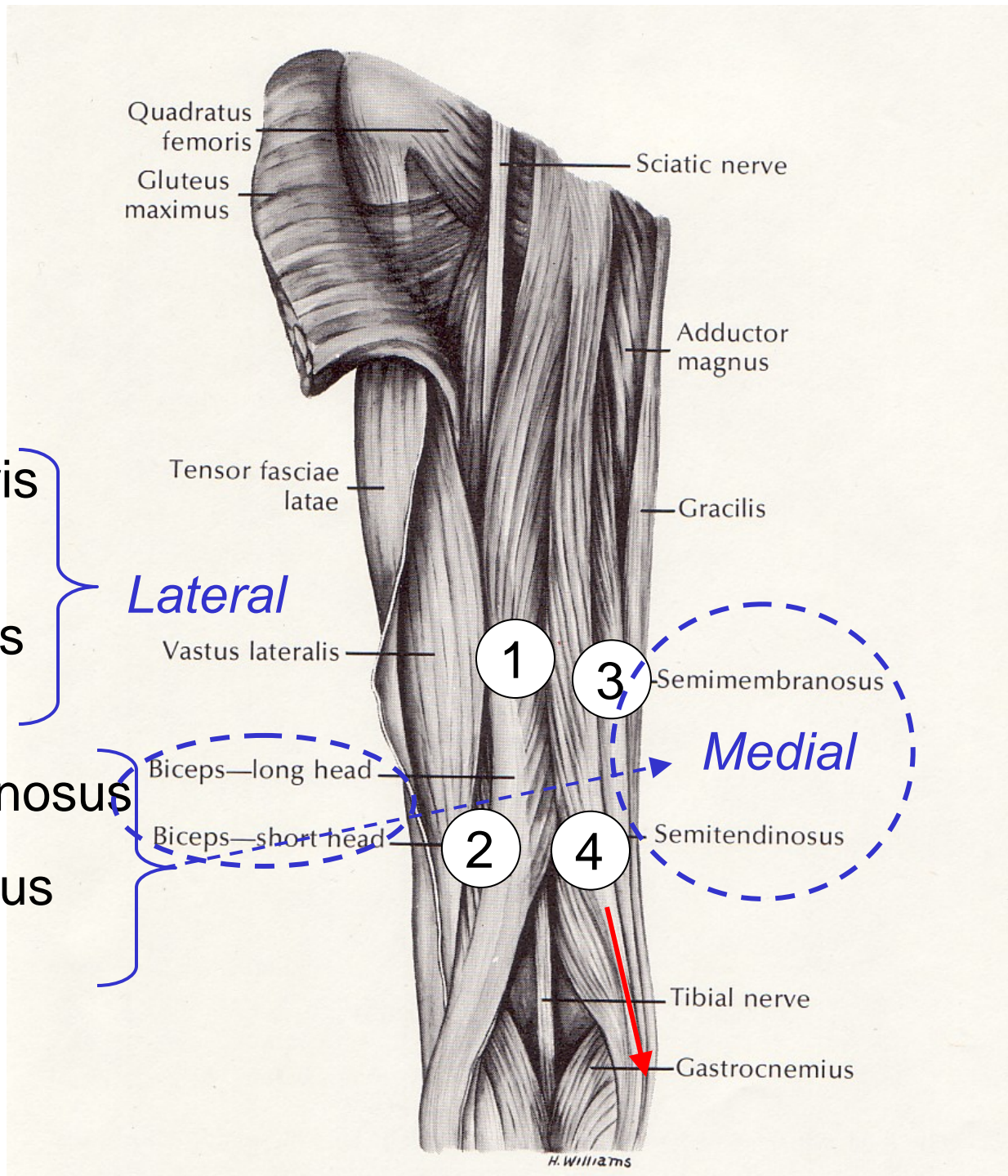
### Hamstring Group

① Biceps femoris  
(long)

② Biceps femoris  
(short)

③ Semimembranosus

④ Semitendinosus





L thigh  
posterior

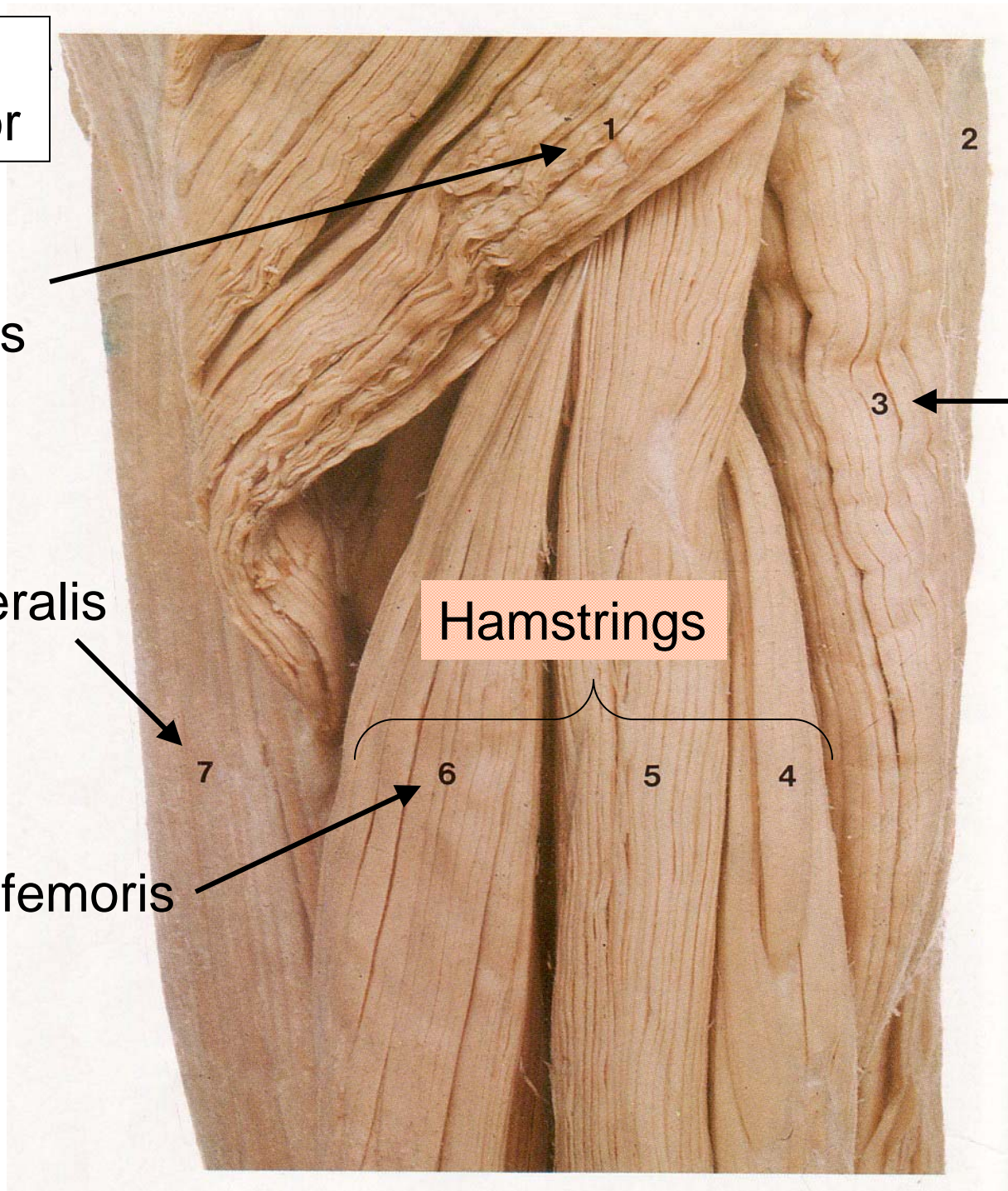
Gluteus  
maximus

Vastus lateralis

Biceps femoris

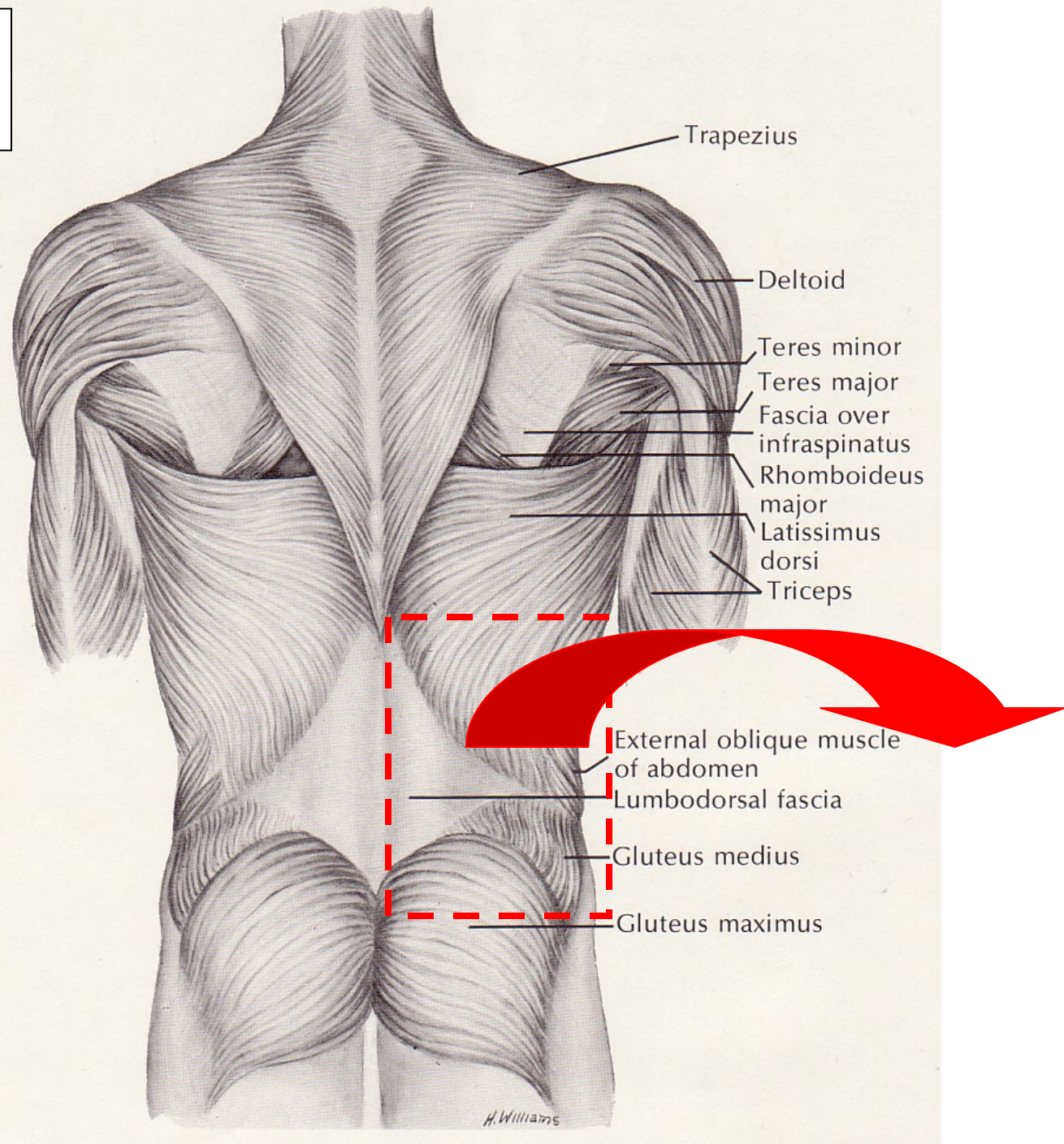
Hamstrings

Adductor  
magnus





R lower back  
& hip quadrant





R lower back  
& hip quadrant

Latissimus dorsi

External oblique

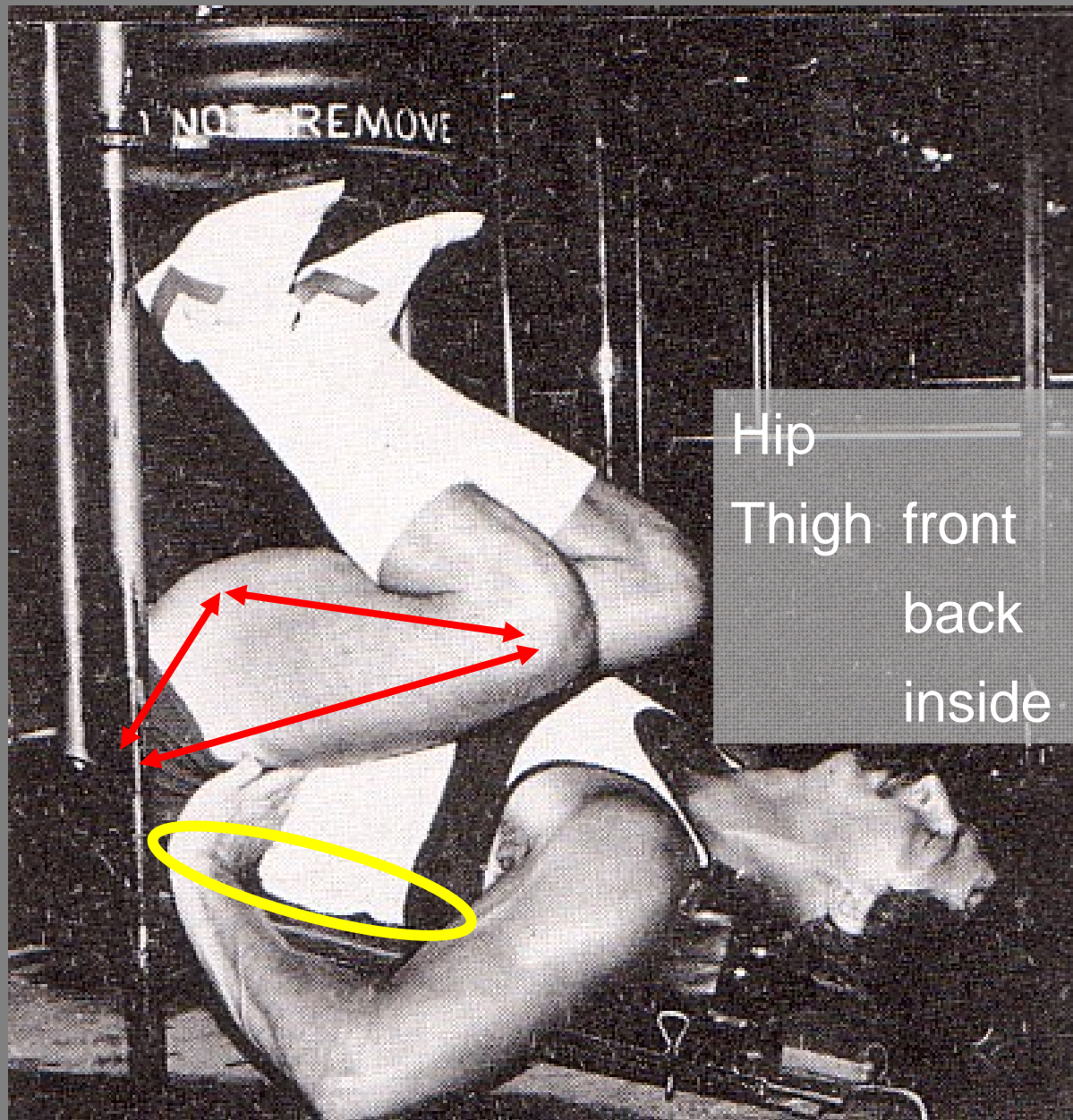
Erector spinae  
beneath fascia

Gluteus maximus



# Leg Press

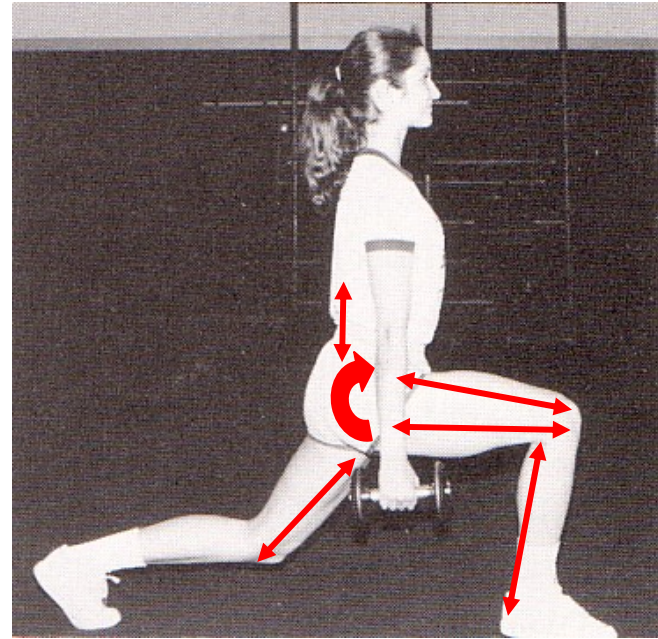
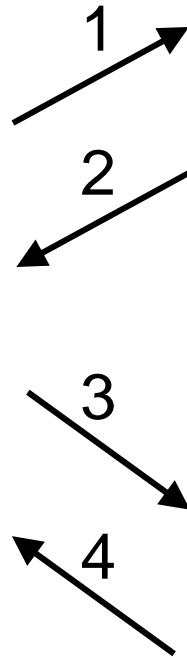
Gluteal group  
Quadriceps  
Hamstrings  
Adductors



- Lower back

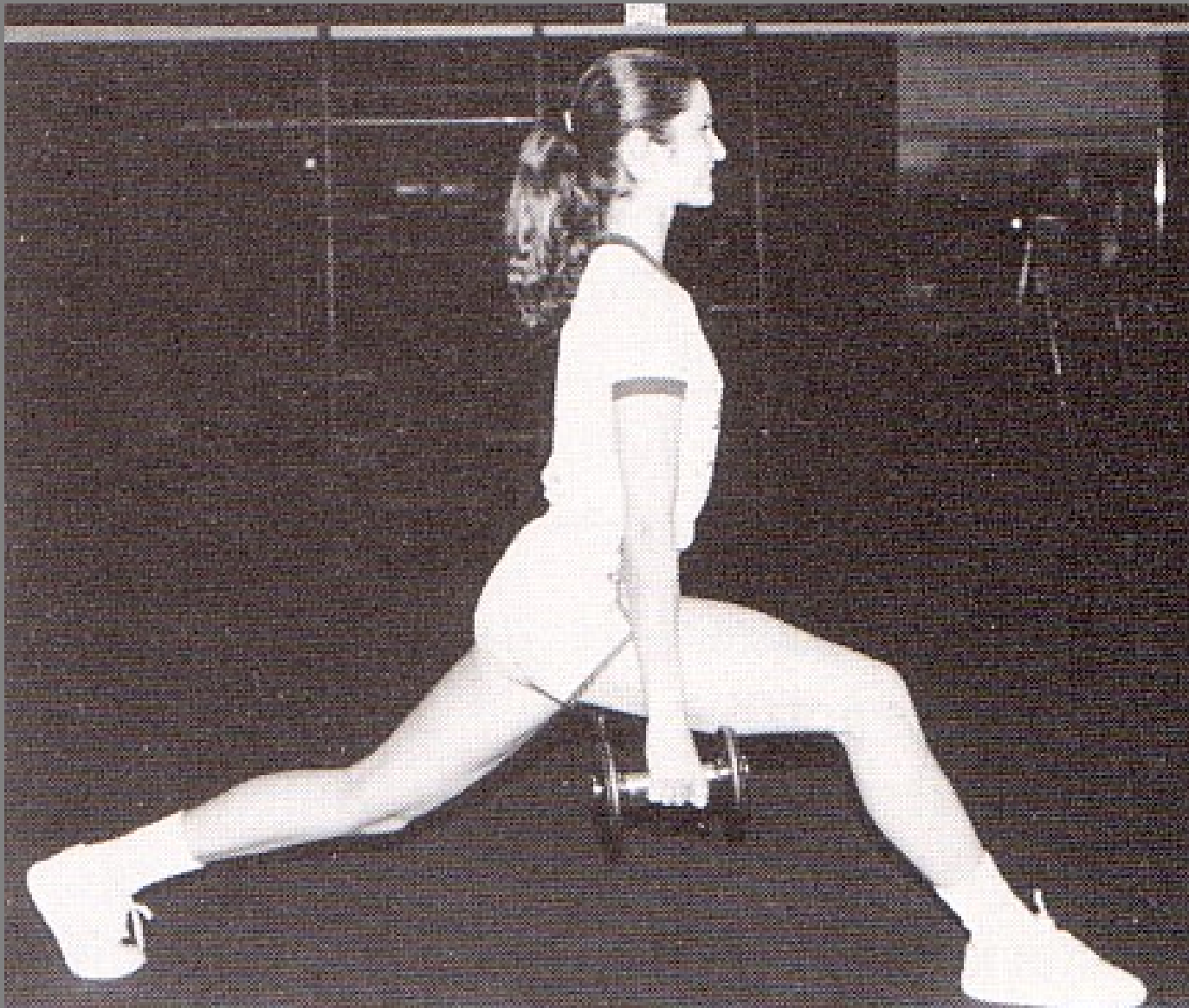


# Lunge

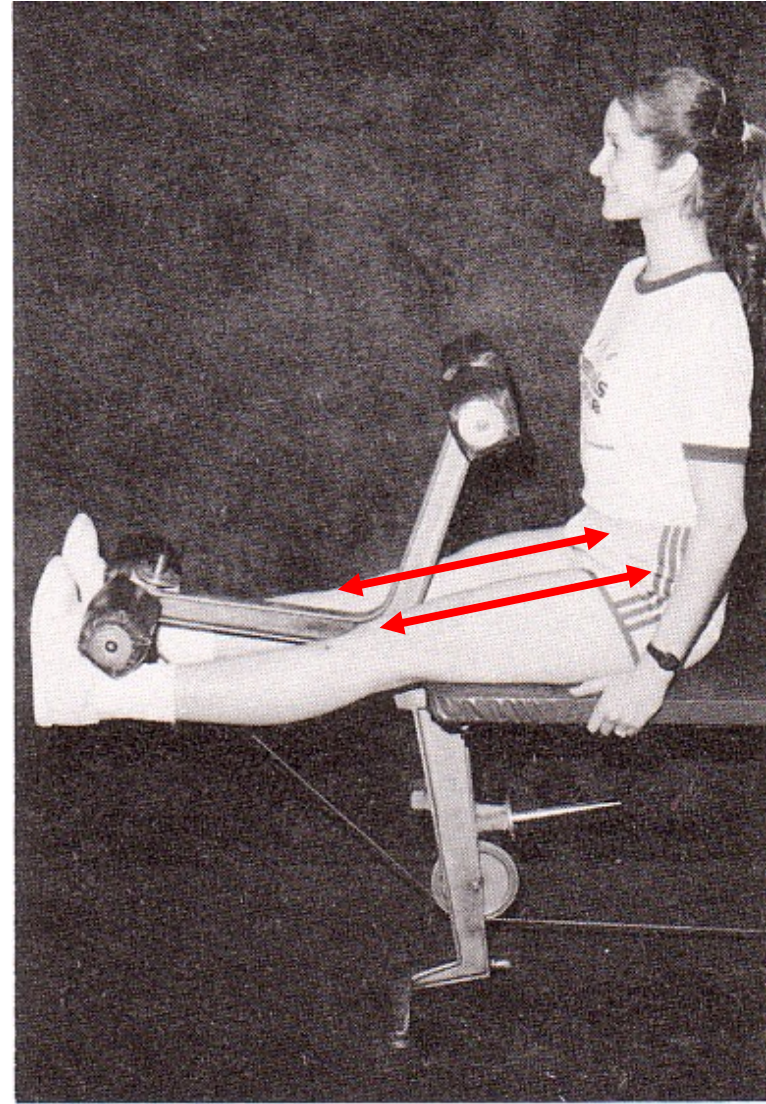




# Avoid Overstriding!



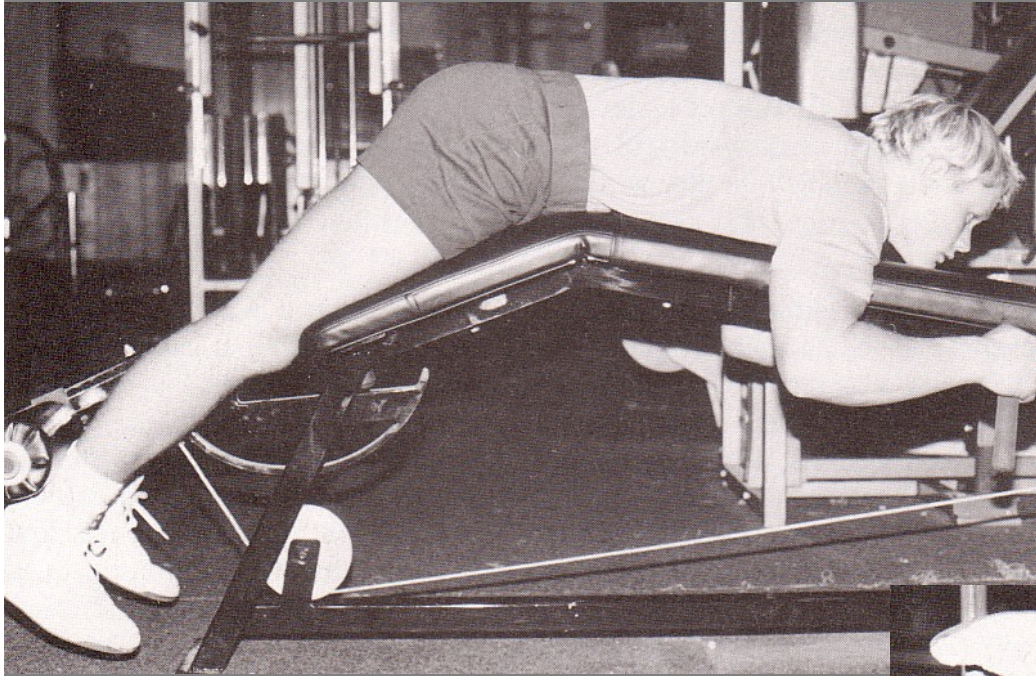
# Leg Extension



*Front of thigh = quadriceps*

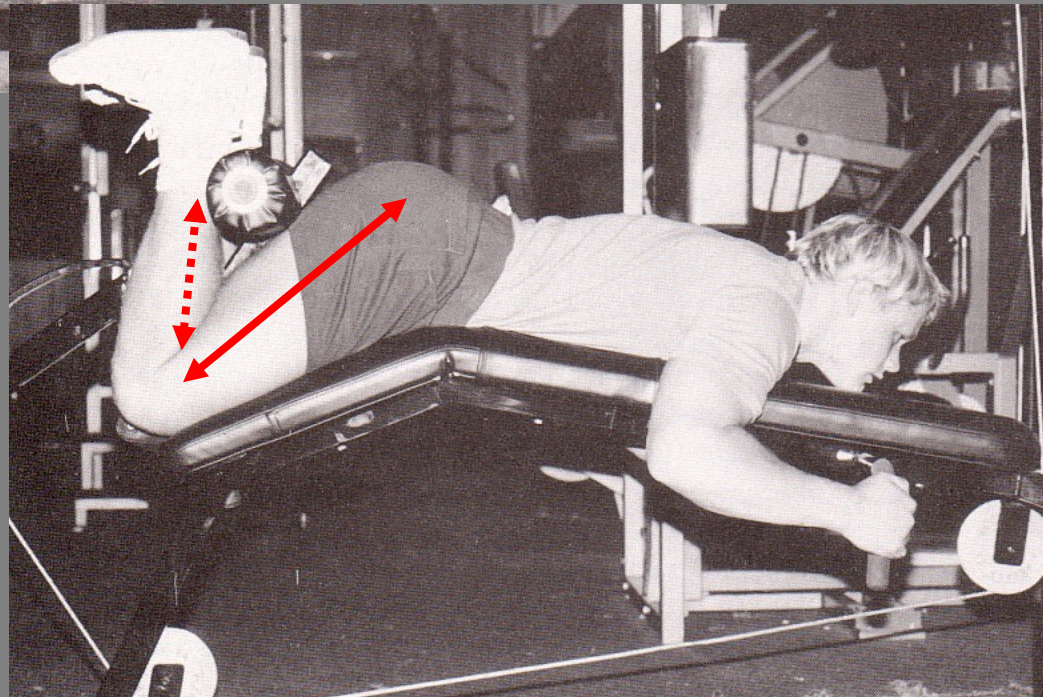


# Leg Curl



*Posterior thigh = hamstring group*

*Calf = gastrocnemius  
(minor involvement)*





***Push!***

***Upper Body!***

***Multi-Joint Action!***

***Agonistic!***

# Bench Press

Chest

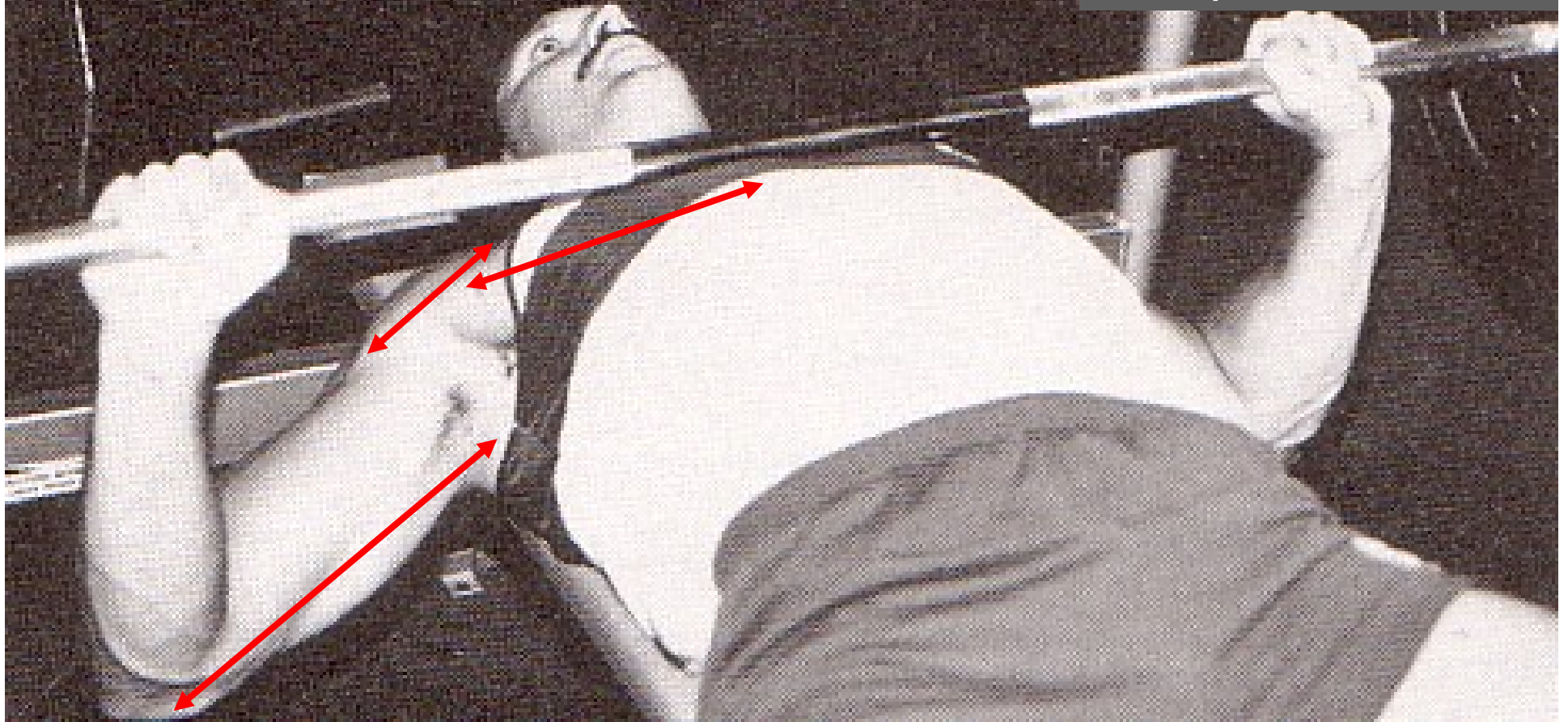
Shoulder front

Arm back

Pectoral group

Anterior deltoid

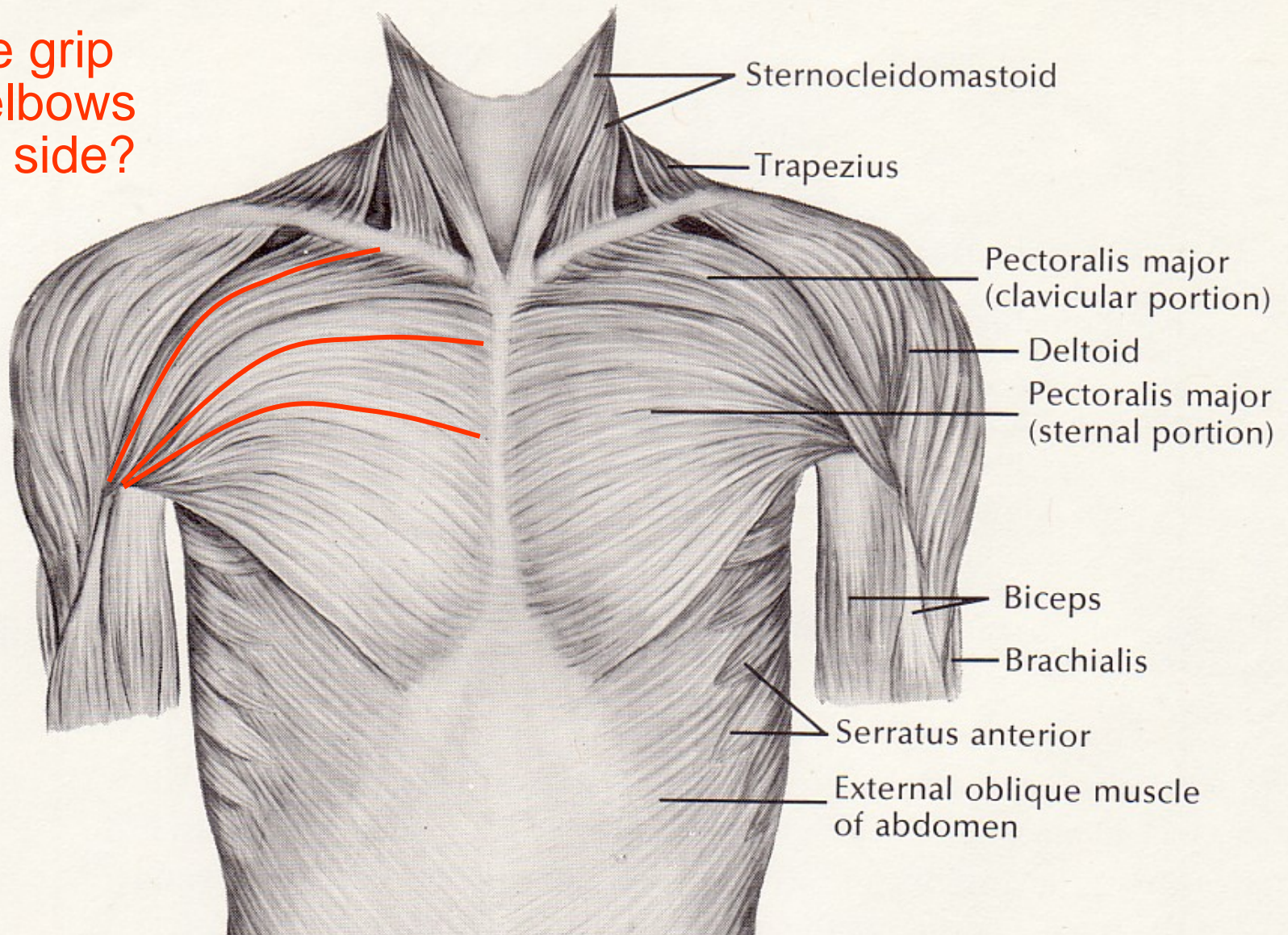
Triceps brachii





## Chest anterior

Q. Wide grip  
vs. elbows  
near side?





R chest anterior



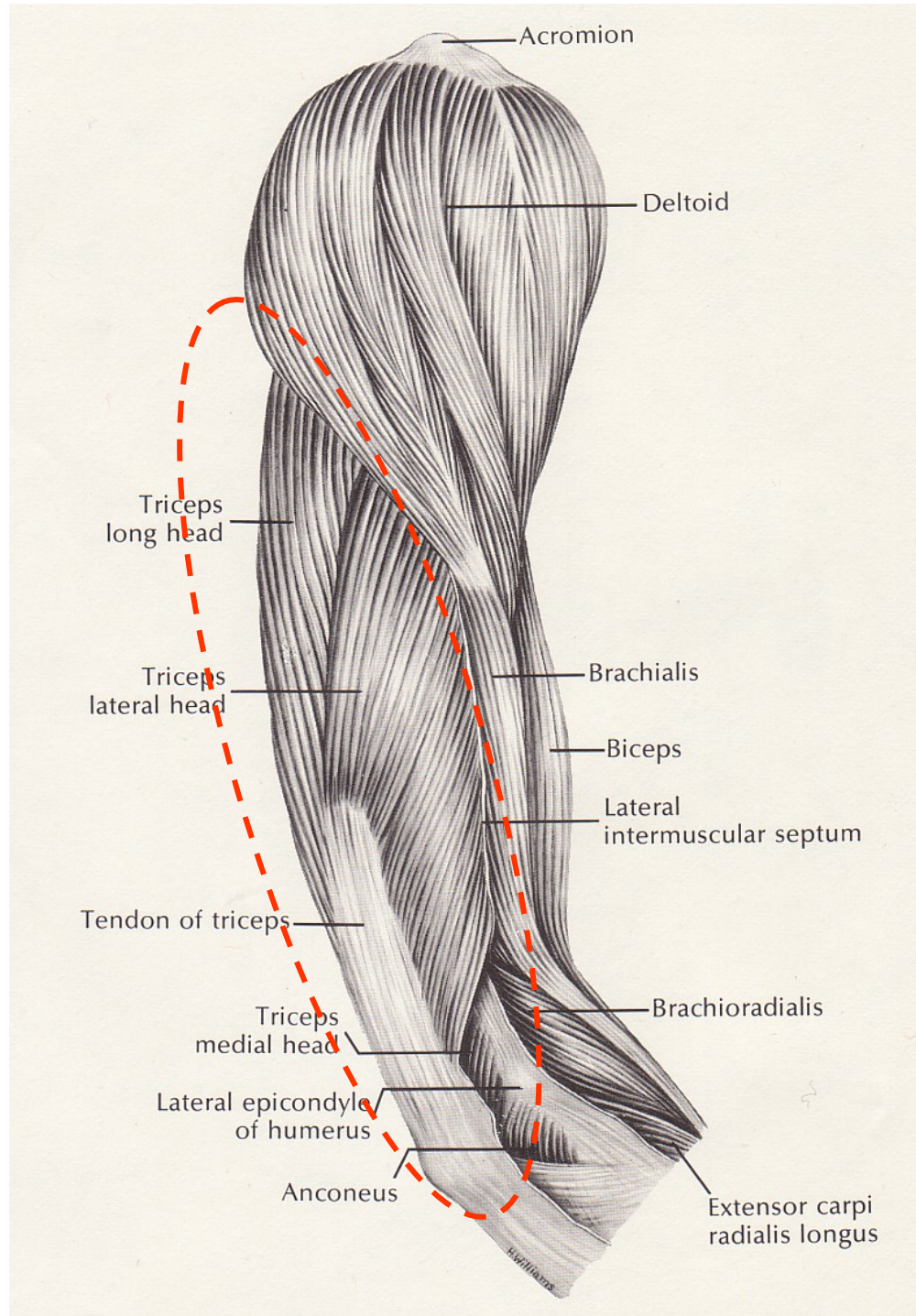


# R chest anterior





## R arm lateral





L arm lateral

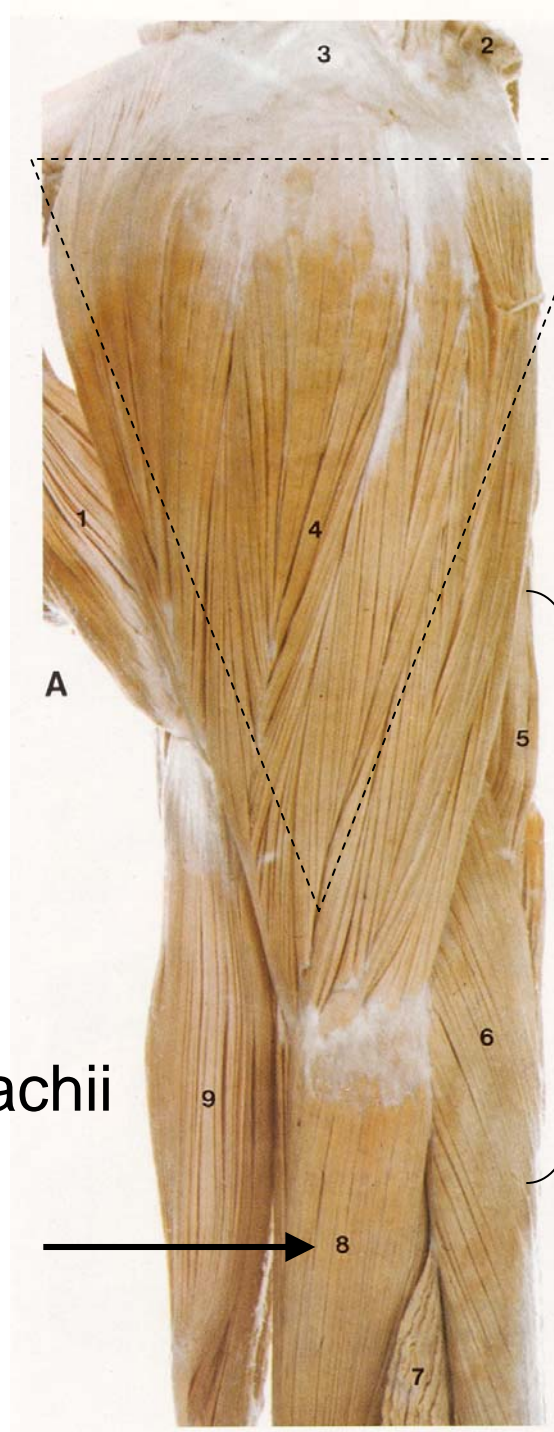
Pectoralis major

Deltoid

Triceps brachii

Biceps brachii

Brachialis

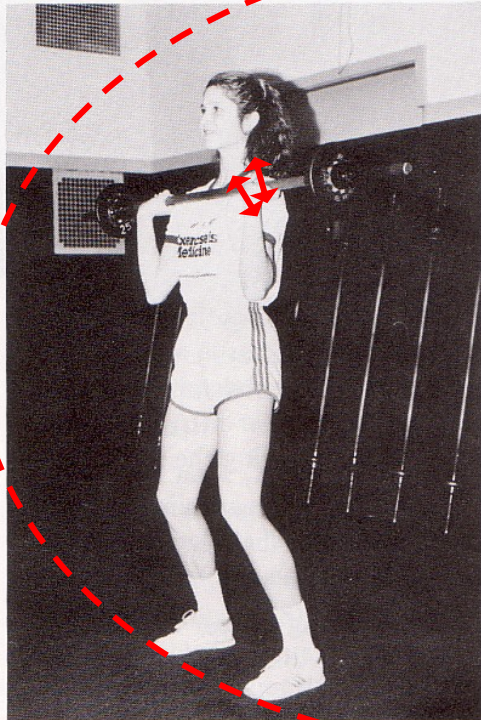




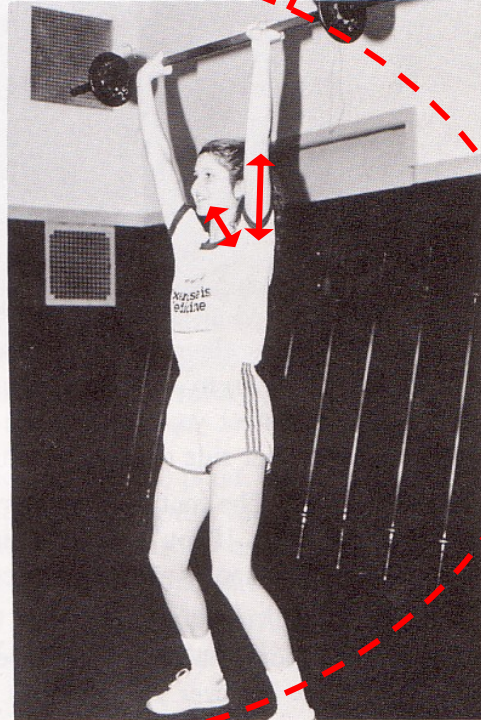
A

## *Military Press*

Shoulder – front & middle  
Arm – back  
Neck



B

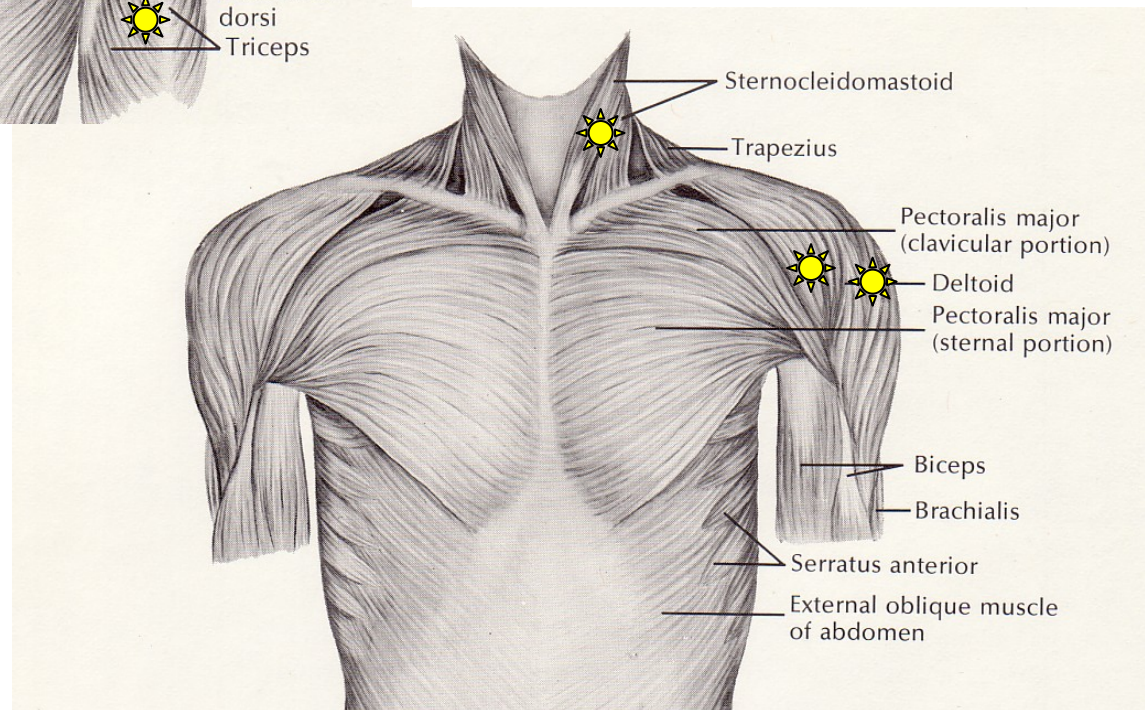
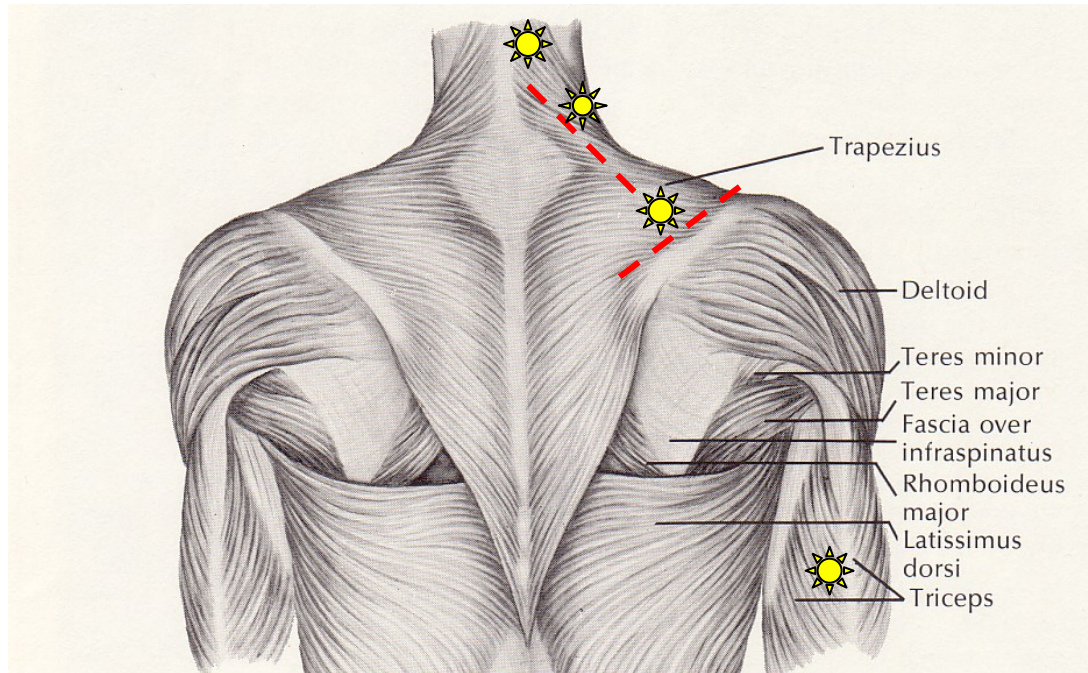


C

Anterior & Middle Deltoid  
Supraspinatus  
Triceps Brachii  
Anterior neck muscles  
Sternocleidomastoid  
Posterior neck muscles  
Upper trapezius  
Levator scapula



# ***Military Press Muscle Activation***



***Pull!***

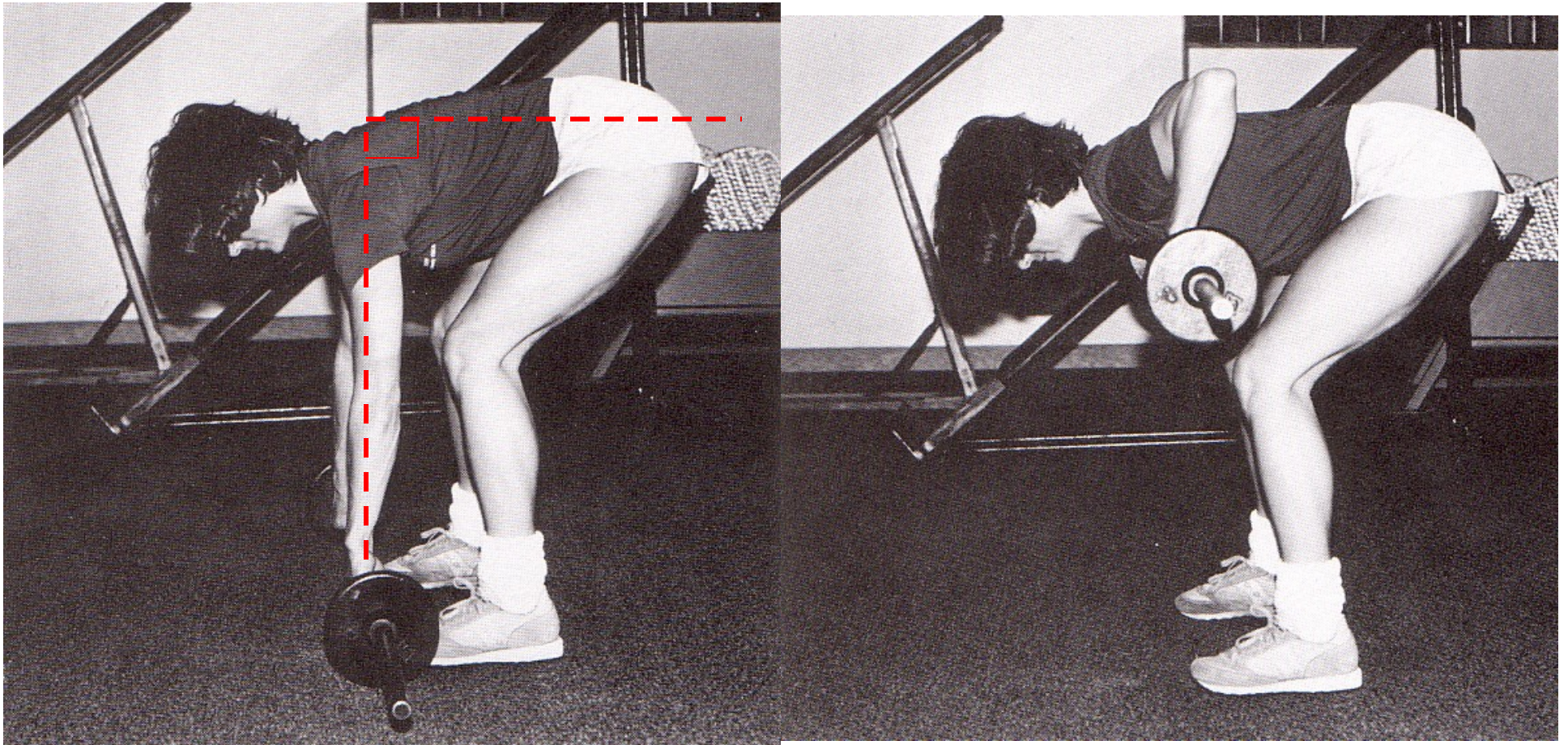
***Upper Body!***

***Multi-Joint Action!***

***Antagonistic!***



# Bent-over Row



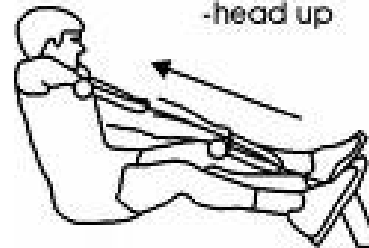
**NB:** Engages muscles exactly inverse to bench press. Upper back, back of shoulder, front of arm, back of forearm. Great for supersetting!

# Seated Row! Wow Possibilities!?

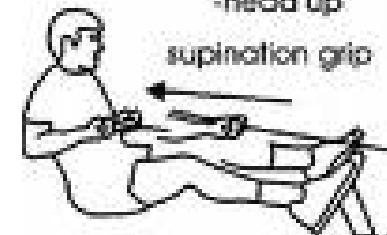


on pulley  
with cable

- keep back straight
- chest out
- head up



-keep back straight  
-chest out  
-head up



**NB:** Engages muscles inverse to bench press with a bit more lower back! Still good for supersetting! Variable grip and pull?



Latissimus dorsi grip vs wider rhomboid,  
mid-trapezius grip. Posterior deltoid?  
Pronated vs supinated?



SOURCE: [www.fitworkz.com](http://www.fitworkz.com)

[http://www.ehow.com/video\\_2367237\\_do-rowing-upper-body-exercises.html](http://www.ehow.com/video_2367237_do-rowing-upper-body-exercises.html)